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Hype or hope? A new look at the research on cultural intelligence

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Abstract

Cultural intelligence (CQ), the capability by which expatriates, managers, and others involved in cross-cultural interactions function effectively in a globalized world, was introduced in 2003 and has garnered wide attention recently. In this paper, we present a detailed and up-to-date review of 142 empirical articles in the CQ research field. We first examine the concept of CQ, including its definition, structure, measurement, and validity. We then review the vast number of empirical studies that investigate the antecedents, development, direct and indirect effects, moderating effects, and aggregated effects of CQ, as well as qualitative studies. The analysis shows several issues that likely will be relevant to the research debate in the near future. These issues include investigations of (1) whether cultural intelligence is universal or culture-specific, (2) why objective measures that assess CQ are lacking, (3) to what extent a person can develop cultural intelligence, (4) to what extent there are dark sides to cultural intelligence, and (5) the role cultural intelligence plays as a predictor of individual and group performance. Addressing these questions may help us reveal the true potential of CQ in contemporary organizations and thus, affirm that the promise of CQ is more than just hype.

Keywords:

Cultural intelligence

CQ

Culture

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Review

1. Introduction

The concept of globalization is key to understanding the modern world. Recent technological advances have made international communication and transportation much easier than our ancestors could ever have imagined. These advances open up new opportunities, as well as misunderstandings and conflict. Therefore, identifying competences with which individuals can be effective in cross-cultural interaction has become increasingly important to management scholars and practitioners.

Of the efforts to isolate such competences, a recently developed concept—cultural intelligence (CQ)—has emerged and captured a great deal of attention. Among the abundant constructs, terms, and models in cross-cultural research, CQ, defined as the capability to function well in culturally diverse situations (Earley & Ang, 2003), has, despite its short history, "undergone a remarkable journey of growth" (Ng, Van Dyne, & Ang, 2009, p. 30). The first years of CQ focused on defining the concept; empirical research increased around 2008, focusing first on antecedents and effects and more recently, on indirect effects and methods for developing CQ. The research on CQ has become extensive, as indicated by around 30 articles in each of the years 2016 and 2017. But is CQ just hype, or is it truly helpful in dealing with contemporary cultural diversity?

The aim of the present review is to provide a comprehensive and up-to-date assessment of the literature on CQ, as well as suggestions for future research. In doing so, we build on previous review articles on CQ (Andresen, & Bergdolt, 2016; Ang, Rockstuhl, & Tan, 2015; Bücker, 2014; Leung, Ang, & Tan, 2014; Ng et al., 2009; Ott & Michailova, 2018). However, this review differs from previous studies in important ways. Most notably, this review includes articles that were published since 2015. Due to the rapid growth in research, this adds 59 empirical studies published after the most recent review (i.e., Ott & Michailova, 2018). The latest developments have introduced new variables in CQ research

(Arli, Pekerti, Kubacki, & Rundle-Thiele, 2016), more complex relationships among familiar variables (M. Li, Mobley, & Kelly, 2016), and new measurement tools (Alon, Boulanger, Meyers, & Taras, 2016). Moreover, the most recent research also has a somewhat different pattern than earlier studies, for example, focusing more on the direct and indirect effects of CQ. In this review, we focus on the latest studies—research that we believe will enhance understanding of the field substantially.

Furthermore, the inclusion criteria for this review differed slightly from those of previous reviews. We included all studies on cultural intelligence that appear in the Web of Science database. Thus, this review covers a wider range of research fields—including business, management, education, psychology, as well as some rarely covered fields, such as information science and public administration—than previous reviews. We also address different levels of CQ research, including individual, dyadic, and organizational levels. In sum, this approach resulted in the inclusion of 86 empirical studies on CQ that have *not* been covered in any of the reviews mentioned above. Consequently, we aim to present a comprehensive, up-to-date picture of the origin, development, status, and potential future directions of CQ research.

The paper is organized as follows. First, we present the data collection procedure for the review (Section 2). Then, we introduce the concept of CQ, including its definition and structure (Section 3). We then examine empirical studies of CQ, including measurement and validity (Section 4), antecedents (Section 5), development (Section 6), direct and indirect effects (Section 7), moderating effects (Section 8), aggregated effects (Section 9), and qualitative studies (Section 10). In the final section, we offer suggestions for future research directions (Section 11).

2. The data collection process

The studies reviewed were identified through the Web of Science database, which was selected because it is a leading database for scientific articles that provides scholarly criteria for its journal selections. We used the search terms *cultural intelligence* or *CQ* and searched for these terms in the title or the topic of the article.

Articles outside the study scope, in fields such as anthropology, biology, medicine, neurosciences, psychiatry, and zoology, were excluded. Furthermore, we included only articles written in English and only journal articles—thus excluding, for example, book reviews, meeting abstracts, and proceedings. We tracked all studies until the last update on 1 April 2018, while the earliest publication related to CQ appeared in 2002.

The selection process resulted in 186 studies in total. The journals that published the most articles on CQ research were *Academy of Management Learning & Education* (15), *International Journal of Intercultural Relations* (15), *International Journal of Human Resource Management* (14), and *Group and Organization Management* (12). These journals together published around 30% of the total 186 publications. Other studies on CQ were dispersed among 87 other journals.

For the convenience of analysis, we classified the publications on CQ as theoretical or empirical articles. The total numbers of the two types of publications were 37 and 149, respectively. The percentage of theoretical vs. empirical articles has been decreasing somewhat, which seems reasonable during the establishment of the conceptual framework of CQ. Specifically, after 2006, nine theoretical articles focused on the conceptual framework, including a special issue in *Group and Organization Management*. Thereafter, the focus of research has shifted to empirical studies.

The empirical studies included in the present review measured CQ as a variable. Four articles examined CQ as a control variable, and three articles measured derivative measures

of CQ, for example, the malleability of CQ (Cuadrado, Tabernero, & Briones, 2014). Therefore, we focused on the remaining 142 empirical publications. Among these articles, 128 studies employed a quantitative method to measure CQ, while 14 studies employed qualitative methods, including interview, case study, and content analysis.

The studies that used quantitative methods were further classified according to their main themes: measurement scale and validity, antecedents of CQ, CQ development, effects of CQ, CQ as a moderator, or CQ at the aggregate level. This classification was applied for the convenience of this review, and each article was categorized into one theme only when presented in the subsequent tables. The vast majority of the studies fell easily into one of the categories, but some studies covered different themes simultaneously, in which case the studies are assigned to the most prevalent theme when we discuss the studies.

An overview of the research on CQ is illustrated in Figure 1. The recent rapid increase in studies on CQ makes it difficult for previous reviews to keep track of the literature. Therefore, we distinguish between articles published before 2015 and those published from 2015 to the present. This categorization also makes potential trends and changes of topics in CQ research more visible. As can be seen in Figure 1, the latest studies focus on the empirical part of CQ—quantitative studies in particular. The four studies that used CQ as control variable were published in recent years, which indicates that CQ research has not been confined to its own field but has also been noticed and acknowledged in the wider field of cross-cultural competence. Furthermore, publications concerning antecedents and direct and indirect effects of CQ have increased rapidly in recent years, while the number of studies measuring CQ development and CQ at the aggregate level and studies adopting qualitative methods have decreased since 2015.

Insert Figure 1 about here

Importantly, this review includes only studies that explicitly addressed the issue of CQ. The area of intercultural competence is clearly much more than just CQ (see for example the reflections by Kealy (2015) and Ruben (2015)). However, although examining a broader scope in intercultural competence would provide a more extensive analysis, the amount of research is simply too large to integrate in a single review article. Moreover, the concept of cultural intelligence is well defined and highly cited, and no other measurement of intercultural competence has resulted in such a vast amount of scientific studies in recent years. Therefore, we suggest that CQ deserves treatment as a research area in its own right; however, we emphasize that this concept is a part of the larger literature on intercultural competence.

3. Cultural intelligence

3.1. The definition of cultural intelligence

The first established and most frequently adopted definition of CQ was given by Ang and Van Dyne (2008) as "the capability of an individual to function effectively in situations characterized by cultural diversity" (p. 3). However, several other definitions have been suggested. Thomas et al. (2008) listed eight different definitions of CQ, including their own definition: "a system of interacting knowledge, linked by cultural metacognition, that allows people to adapt to, select, and shape the cultural aspects of their environment" (p. 126). Although there are nuances of words and terms in these definitions, all are aimed at answering the same question: Why are some persons more effective than others in culturally specific situations?

CQ should be distinguished from other concepts of intelligence, such as emotional intelligence (EQ) and social intelligence (Earley, 2002). CQ enables people to "look beyond their own cultural lens" (Earley, 2002, p. 285) and is argued to be critical for cross-cultural

situations, which is not the case for social and emotional intelligence. CQ has also been distinguished from personality traits. As a type of competence, CQ is state-like and malleable and can be predicted by personality traits that are more stable (see Section 5.1 for more about this point).

3.2. The structure of cultural intelligence

Ang and Van Dyne (2008) suggested that CQ is a multidimensional construct consisting of four dimensions: metacognitive, cognitive, motivational, and behavioral CQ. This four-dimensional structure has been widely adopted, although some earlier research combined the metacognitive and cognitive facets into one dimension. Some researchers (Thomas, 2006; Thomas et al., 2008) also questioned whether the motivational dimension should be included in cross-cultural competence and suggested a three-dimensional model that includes cultural knowledge, cultural skills, and cultural metacognition. The labels of CQ dimensions may vary, for example, cognitive, physical, and emotional (Earley & Mosakowski, 2004) or knowledge, skills, and attributes (Johnson, Lenartowicz, & Apud, 2006). However, aside from these different labels, there is a common view of what constitutes CQ.

Metacognitive CQ refers to "an individual's level of conscious cultural awareness during cross-cultural interactions" (Ang & Van Dyne, 2008, p. 5). Previous research has assumed that metacognitive CQ includes an individual's self-concept and inductive reasoning (Earley, 2002) as well as the ability to question one's own expectations. However, Klafehn, Li, and Chiu's (2013) empirical results questioned "the uniqueness of the metacognitive CQ subscale as a stand-alone subfacet" (p. 974), which will be discussed in more detail in the validity section (Section 4.2).

Cognitive CQ refers to “knowledge of norms, practices and conventions in different cultures that has been acquired from educational and personal experiences” (Ang & Van Dyne, 2008, p. 5). The knowledge component of CQ includes culture-specific knowledge (which provides information about rules and norms in different cultures) and culture-general knowledge (which provides information about a complex and specific environment). Although CQ was defined as a culture-general construct, at least for the cognitive component, it is hard to fully exclude culture-specific knowledge. We will discuss this further in Section 11.1.

Motivational CQ reflects the “capability to direct attention and energy towards learning about and functioning in situations characterized by cultural differences” (Ang & Van Dyne, 2008, p. 6). Motivational CQ includes interest and confidence in cross-cultural interactions, as well as direct effort and energy expended in cross-cultural interactions. However, researchers have also questioned the motivational dimension of the CQ construct. For example, Thomas (2006) distinguished motivation and intelligence as “willingness” and “ability,” which behave in respective ways, and argued that motivation casts a halo effect over the CQ construct that should not exist.

Behavioral CQ reflects the “capability to exhibit appropriate verbal and non-verbal actions when interacting with people from different cultures” (Ang & Van Dyne, 2008, p. 6). Behavioral CQ concerns verbal and non-verbal behaviors and provides the necessary conditions for other CQ aspects to function effectively. Importantly, mimicking typical behaviors in other cultures could function as a double-edged sword. For example, empirical studies on social identity theory have shown that moderate adaptation increases attraction, while a high level of adaptation has a negative effect (Francis, 1991). This topic is discussed further in in Section 11.4.

4. Measurement and validity of cultural intelligence

4.1. The Cultural Intelligence Scale

The Cultural Intelligence Scale (CQS) developed by Ang and colleagues (Ang et al., 2007; Van Dyne, Ang, & Koh, 2008) is by far the most commonly used tool for measuring CQ. More than 90% of the quantitative articles examined in this review adopted the CQS or the revised version as a measurement tool. The scale has also been translated from English to several other languages, including Chinese, French, German, Korean, Portuguese, Spanish, Turkish, and Vietnamese.

The CQS contains 20 items, such as "I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me" (metacognitive); "I know the legal and economic systems of other cultures" (cognitive); "I enjoy interacting with people from different cultures" (motivational); and "I use pause and silence differently to suit different cross-cultural situations" (behavioral). When developing the scale, Van Dyne et al. (2008) conducted a series of studies to demonstrate its generalizability across samples, time, countries, and methods. In general, the CQS has shown good construct validity and predictive power (Matsumoto & Hwang, 2013).

Research studies related to the validity of CQS are summarized in Table 1. These studies examined the fitness of CQ models (Ward, Fischer, Lam, & Hall, 2009), the distinctiveness of CQ from other constructs, such as EQ (T. Moon, 2010a), the validity of CQS in languages other than English (Moyano, Tabernero, Melero, & Trujillo, 2015), and measurement equivalence across countries (Bücker, Furrer, & Weem, 2016; Schlägel & Sarstedt, 2016).

Insert Table 1 about here

Overall, the four-factor model of CQ has been confirmed (AL-Dossary, 2016; Moyano et al., 2015). CQ is also distinct from general cognitive ability (Ward et al., 2009)

and from personality and EQ (Şahin, Gürbüz, Köksal, & Ercan, 2013), although several researchers also emphasized the strong link between CQ and EQ (T. Moon, 2010a; Thomas et al., 2015; Ward et al., 2009).

For the predictive power of CQ, some studies found that CQ predicts dependent variables over and above EQ (T. Moon, 2010a; Şahin et al., 2013) while other studies failed to do so (Klafehn et al., 2013; Putranto, Nuraeni, Gustomo, & Ghazali, 2018; Ward et al., 2009). For example, Putranto et al. (2018) found that EQ has a statistically significant positive relationship with students' performance, measured with grade point averages (GPAs), while CQ failed to show a statistically significant relationship with students' performance. Klafehn et al. (2013) also questioned the uniqueness of the metacognitive CQ subscale as it "shared more than 50% of its variance with the other three subscales of the CQS" and "exhibits weak divergent validity evidence" (p. 976). In addition to the self-rated CQS, Klafehn et al. (2013) examined peer-rated measures and found that peer-rated CQ has higher factor loadings and therefore, should be better at assessing CQ than self-rated measurements.

The CQS has also been translated into Arabic (AL-Dossary, 2016), Spanish (Moyano et al., 2015), and Turkish (Şahin et al., 2013) and shows good validity. However, previous researchers were cautious when comparing cross-cultural CQS scores. Schlägel and Sarstedt (2016) examined the validity of CQS across five samples (China, France, Germany, Turkey, and the US), and measurement equivalence was established only between the Turkish and U.S. samples. Bücker et al. (2016) compared CQ scores between Chinese and Dutch samples, and the 20-item, four-dimensional model of CQ failed to show measurement equivalence across the countries. A two-dimensioned model that combined metacognitive and cognitive CQ into one single dimension: "internalized cultural knowledge", and motivational and

behavioral dimensions into “effective cultural flexibility” (Bücker, Furrar, & Lin, 2015) had a better fit when comparing CQ scores across different countries.

4.2. Other measures of cultural intelligence

In addition to the widely used CQS, we identified two other measurement scales: the Short Form measurement of Cultural Intelligence (SFCQ) and the Business Cultural Intelligence Quotient (BCIQ).

Thomas et al. (2015) developed the SFCQ based on the three-facet model of CQ (Thomas, 2006; Thomas et al., 2008). A 10-item scale was used to measure cultural knowledge, skills, and metacognition, and although this instrument is relatively new, Pekerti and Arli (2017) adopted this measurement. In addition to the exclusion of the motivational dimension, this tool measures a broader aspect of each dimension of CQ, although the instrument includes fewer questions than the CSQ. For example, the behavioral component of CQS focuses on the adaptation of one’s verbal and non-verbal behavior in cross-cultural situations, while the SFCQ includes relational skills, tolerance of uncertainty, empathy, and perceptual acuity, with sample questions, such as, “I accept delays without becoming upset when in different cultural situations and with culturally different people.” Concerning the validity of the SFCQ, Thomas et al. (2015) showed that CQ is moderately correlated with—yet distinct from—EQ and personality, and predicted intercultural effectiveness.

Focusing on applying CQ in business and workplace contexts, Alon et al. (2016) developed the BCIQ model, which is, according to the authors, “uniquely suitable for business research applications” (p. 85). The measurement includes 18 self-reported questions that measure three dimensions: motivation, adaptation, and learning behavior. This measurement tool is also distinct from the CQS regarding the cognitive component. The

BCIQ includes 20 true/false questions to measure the respondents' global knowledge. Sample statements include "A knife is not an appropriate gift in Russia."

5. Antecedents of cultural intelligence

We now discuss the antecedents of CQ. The research is summarized in Table 2. We categorized the predictors of CQ into two main categories: (1) individual traits and capabilities and (2) intercultural experience. The studies of personality and other individual differences mostly used student samples, while studies of intercultural experience typically examined samples with work experience, such as expatriates.

Insert Table 2 about here

5.1. Traits and capabilities

The Big Five personality dimensions are the most frequently examined traits in the CQ literature. The Big Five and CQ are multidimensional constructs. Thus, effects on overall CQ and on dimensions of CQ have been examined. For the Big Five, the studies in this review used various scales to measure the dimensions, and the number of items differed considerably among the studies, for example, ranging from 44-item scales (Depaula, Azzollini, Cosentino, & Castillo, 2016; Harrison, 2012) to a 120-item scale (Ang, Van Dyne, & Koh, 2006).

The most promising dimension of the Big Five for CQ appears to be openness to experience. The positive effect of openness to experience was found to be related to all CQ dimensions (Ang et al., 2006; M. Li et al., 2016) and to overall CQ (Depaula et al., 2016; Harrison, 2012). Agreeableness also seems to be positively related to overall CQ (Harrison, 2012) and to the behavioral dimension of CQ (Ang et al., 2006). However, emotional stability is the only dimension of the Big Five to have a statistically significantly negative link to behavioral CQ (Ang et al., 2006). Researchers also recently examined more complex

interactions between the Big Five and CQ. Interestingly, M. Li et al. (2016) examined the interplay of openness and agreeableness. Their results showed that when agreeableness is high, openness is positively related to aspects of CQ, and when agreeableness is low, this relationship disappears. The authors suggested that open individuals who are low on agreeableness are "less likely to learn from culturally different others … due to their lower level of interpersonal competencies" (M. Li et al., 2016, p. 106).

Several individual differences other than the Big Five have been related to CQ. For example, N. Nel, J. A. Nel, Adams, and De Beer (2015) found that intellect ("the ability to think and obtain knowledge") and facilitating ("the ability to direct and lead people according to one's own experiences") are positively related to metacognitive CQ (p. 5). Moreover, language ability was found to be positively related to overall CQ (Harrison, 2012), while social intelligence was found to positively predict CQ to a greater extent than other predictors (Depaula et al., 2016). Adair, Buchan, X. P. Chen, and Liu (2016) examined the relationship between context dependency and CQ. Communicators who are more dependent on context cues (such as eye contact, body movement, and use of silence in communication) were found to have a higher level of overall CQ. Similarly, Holtbrügge and Engelhar (2016) found that cultural boundary spanners, who are able to react depending on situational cues, have higher CQ in all four dimensions. Bernardo and Presbitero (2017) found that people who strongly believe that different cultural groups are connected and influence each other (polyculturalism) also tend to have higher CQ. Polyculturalism also partially explains the country-level differences among the CQ results.

5.2. Intercultural experiences

CQ can be developed with cross-cultural contact. International experience provides a crucial and unique context that creates the opportunity for CQ learning and development.

Therefore, intercultural experience is one of the most frequently examined predictors of CQ. Most previous research supports a positive link between intercultural experience and CQ (Harrison, 2012; H. K. Moon, Choi, & Jung, 2013; Pekerti & Arli, 2017). However, a common understanding of how to measure intercultural experience is lacking. Some researchers examined different types of intercultural experiences. For example, Crowne (2008) distinguished among employment, education, vacations, and other types of experience. The study linked educational experience to overall CQ and all CQ dimensions and employment experience to overall CQ and metacognitive and behavioral CQ. Kurpis and Hunter (2017) also found that intercultural experience gained through work or travel abroad is positively correlated with all aspects of CQ, while intercultural knowledge gained through classes and studies has a positive link to cognitive, motivational, and behavioral CQ. Some authors, however, focused on certain types of experience, such as expatriation (H. K. Moon et al., 2013) and immigration (Pekerti & Arli, 2017).

Some researchers also examined the depth of intercultural experience. For example, Crowne (2008) used the number of countries visited to measure the depth of intercultural experience and found that higher levels of cross-cultural exposure increase CQ. Correspondingly, M. Li et al. (2013) found that the length of overseas experience is positively correlated with CQ, and the relationship is strengthened when participants have a divergent learning style that "emphasizes concrete experience and reflective observation" (p. 36). However, Schwarzenthal, Juang, Schachner, van de Vijver, and Handrick (2017) examined effects of intercultural contact on CQ and failed to find differential effects among adolescents with immigrant and non-immigrant backgrounds.

Given the various methods of measuring intercultural experiences, it is not surprising that previous review articles found inconsistent results across the four dimensions of CQ (Ang et al., 2015; Ng, Van Dyne, Ang, & Ryan, 2012). To deal with this lack of consistency,

future research may need to examine which measurements of intercultural experience are the most relevant for CQ research or focus on specific experiences and how they are related to aspects of CQ. For example, one recent theoretical article (O'Sullivan, 2017) suggested that the salience of religious value conflicts should adversely impact motivational CQ, while the introduction of religious symbols should exacerbate this relationship. Furthermore, we need to know more details about how to improve CQ through intercultural experience and training. We now turn to the question of how CQ can be developed.

6. Development of cultural intelligence

Although intercultural experience in itself may be helpful, as indicated above, in this section, we focus on studies that aimed to train individuals to develop CQ or related concepts. The research on the development of CQ is summarized in Table 3.

Insert Table 3 about here

Previous research covered various training approaches for improving CQ. Training approaches differ, ranging from passive methods, such as lectures (Buchtel, 2014), to experiential and involved methods, such as role-plays and behavior modification training (Bücker & Korzilius, 2015; Fischer, 2011). Lectures are considered cost-effective, non-threatening, and able to transmit large amounts of information rapidly (Fischer, 2011), while experiential methods, such as simulation games, provide safe environments "for trying out new behaviors, for understanding old behaviors, and testing how other people react to what we do" (Bücker & Korzilius, 2015, p. 2000). Some studies also provided various training projects that enabled participants to interact with people from different cultures. Four articles (Alexandra, 2018; MacNab, Brislin, & Worthley, 2012; MacNab & Worthley, 2012; Rosenblatt, Worthley, & MacNab, 2013) used a series of training projects that included procedures such as pre-experience check and after-experience feedback to help participants

benefit more from the contact. Other similar experiential projects included a distance course with foreign partners (Ko, Boswell, & Yoon, 2015) and virtual multicultural team projects (Erez et al., 2013; Taras et al., 2013).

In general, training has been found to improve overall CQ and the dimensions of CQ. Experiential training seems to be most effective for the development of motivational CQ (Taras et al., 2013) and behavioral CQ (Ko et al., 2015). Classroom training, including lectures and role-plays, as well as simulation games, appears to be most important for the development of metacognitive CQ (Buchtel, 2014; Bücker & Korzilius, 2015; Eisenberg et al., 2013) and cognitive CQ (Eisenberg et al., 2013; Rehg, Gundlach, & Grigorian, 2012). Examining students in a Canadian–European exchange program, McRae, Ramji, Lu, and Lesperance (2016) found that students who spend a semester working abroad improve their metacognitive and behavioral CQ, while students who spend a semester studying abroad increase their cognitive CQ. However, unexpectedly, Fischer (2011) reported that cognitive CQ decreases after intercultural training lectures and suggested that this might happen because "the experience showed them how little they knew about cultural differences" and made participants "realize their limits in terms of intercultural competence" (Fischer, 2011, p. 773).

Previous research has also considered other factors that facilitate CQ development. For example, self-efficacy is positively related to overall CQ development and to aspects of CQ (MacNab et al., 2012; MacNab & Worthley, 2012; Rehg et al., 2012). Similarly, personality traits such as open-mindedness (Fischer, 2011) are positively correlated to CQ development. Interestingly, students' CQ level before training was not linked with their efforts during training or satisfaction after the course, suggesting that training can also benefit people with low initial CQ (Ramsey & Lorenz, 2016; Reichard et al., 2015). Presbitero and Toledano (2017) found that when members of a global team had more opportunities to

communicate with each other, their CQ training and improvement would more easily result in better task performance than was the case for members with low contact intensity.

Most research on CQ development has been longitudinal, measuring the difference in CQ before and after interventions. The length of training varied from two hours (Reichard, Dollwet, & Louw-Potgieter, 2014) to six months (Şahin, Gürbüz, & Köksal, 2014). Several studies used control groups to increase validity (Buchtel, 2014; Bücker & Korzilius, 2015; Eisenberg et al., 2013; Ramsey & Lorenz, 2016). For example, Ramsey and Lorenz (2016) found that overall CQ improved statistically significantly in the treatment group after training, while the control group showed no such effects. However, Bücker and Korzilius (2015) found that among the four dimensions of CQ, only the increase in metacognitive CQ was larger in the experimental group than in the control group. Finally, several studies also examined whether the effects of interventions persisted and found that CQ improvement was maintained after one month (Reichard et al., 2015) and six months (Erez et al., 2013).

7. Effects of cultural intelligence

We now discuss the effects of CQ. The effects of CQ examined by previous researchers can be roughly divided into three categories: direct effects, indirect effects, and mediating effects. We organize this section accordingly, looking at effects associated with psychological well-being, interpersonal effectiveness, and performance. Psychological well-being is affected by stress and problems that occur when adapting to unfamiliar cross-cultural contexts and intercultural communications, as well as the adjustment when facing such challenges. Interpersonal effectiveness is related to cross-cultural communication issues, such as trust, knowledge sharing, and cooperation. Finally, performance includes subjectively rated performance (self-rated and other-rated) and objectively measured performance.

7.1. Direct effects

The direct effects of CQ are summarized in Table 4a. The most thoroughly researched outcome of CQ is cross-cultural adjustment and performance. The effects of CQ have been most frequently examined in relation to expatriation (Guðmundsdóttir, 2015), intercultural teamwork (Groves & Feyerherm, 2011), and international education (Y. C. Lin, A. S. Y. Chen, & Song, 2012).

Insert Table 4a about here

In general, overall CQ (Lin et al., 2012) and CQ facets (Zhang & Oczkowski, 2016) were found to be positively related to cross-cultural adjustments. Some authors focused on a specific target group. For example, Guðmundsdóttir (2015) examined Nordic expatriates working and living in the United States, while others specified only the participants' host countries, such as expatriates in Japan (Huff, Song, & Gresch, 2014). The link between CQ and cross-cultural adjustment has also been found to be moderated by other variables. Lin et al. (2012), for instance, showed that EQ had a moderating effect on the relationship between CQ and adjustment. Others examined the moderating effect of cultural distance asymmetry (Zhang & Oczkowski, 2016) but failed to find any effects when studying two groups of expatriates (Australian expatriates in China and Chinese expatriates in Australia).

The opposite of cross-cultural adjustment can be measured with constructs such as adaptation problems (Ward, Wilson, & Fischer, 2011), anxiety (Bücker, Furrer, Poutsma, & Buyens, 2014), and suspicion (Luu, 2017). Generally, CQ was found to be negatively linked with these variables. However, by examining Australian- and non-Australian-born samples, Arli et al. (2016) failed to find support for a connection between CQ and harmful alcohol consumption and dependence symptoms.

Regarding performance effects of CQ, individual- (Rockstuhl, Seiler, Ang, Van Dyne, & Annen, 2011) and team-level effects (Khani, Etebarian, & Abzari, 2011) have been

examined. Khani et al. (2011) found that CQ as an individual-level construct predicts team performance at the group level. Groves and Feyerherm (2011) examined the effects of leaders' overall CQ on leader and team performance and found that CQ is positively related to performance at both levels, over and above EQ.

CQ and performance can be measured using self-rating methods (Khani et al., 2011) or peer-rating methods (Presbitero, 2016a). Presbitero (2016a) used a sample of call-center workers, and CQ positively predicted task performance as rated by the participants' supervisors. Another study found that school principals' CQ level is correlated with Latino student achievement in their schools in the United States, while teachers' CQ failed to show similar effects (Collins, Duyar, & Pearson, 2016). Furthermore, Luu (2017) found that employees' perception of their supervisors' CQ is negatively related to employees' suspicion level. Along with self-rated adjustment and well-being, the effects of CQ have been investigated objectively, such as via accuracy on ability tests (Grand, Golubovich, Ryan, & Schmitt, 2013) and academic achievement on standardized tests (Collins et al., 2016). However, Grand et al. (2013) and Collins et al. (2016) did not find that CQ has predictive power for these objective results.

CQ can also be positively connected to interrelationship variables, such as group acceptance for newcomers (Joardar, Kostova, & Ravlinet, 2007) and different leadership styles (Ramsey, Rutti, Lorenz, Barakat, & Sant'anna, 2017; Solomon & Steyn, 2017). Overall, CQ has been linked to transformational leadership, which emphasizes offering followers a vision and inspiring them by acting as role models (Ramsey et al., 2017), while Solomon and Steyn (2017) found that leaders' metacognitive CQ and motivational CQ are better predictors for empowering leadership (i.e., focus on assigning authority and responsibilities to followers) than for directive leadership (i.e., emphasizing precise goals and instructions). Young, Haffejee, and Corsun (2017) found that overall CQ and all dimensions

of CQ, with the exception of cognitive CQ, are negatively related to ethnocentrism. However, only motivational CQ statistically significantly predicted changes in ethnocentrism after a 4-week mentoring program.

Some studies also showed that CQ has an effect over and above constructs such as the Big Five dimensions of personality (Huff et al., 2014). However, Shu, McAbee, and Ayman (2017) recently showed that some personality traits have a predictive power over and above CQ. For example, extraversion predicted interaction adjustment, and conscientiousness predicted school-related adjustment, over and above CQ. Similarly, Aslam, Ilyas, Imran, and Ur Rahman (2016) reported that EQ is the strongest predictor of managerial effectiveness compared to other types of intelligence and that CQ did not have a statistically significant relationship with effectiveness. Interestingly, in examining CQ in banks, Daryani, Aali, Amini, and Shareghi (2017) demonstrated that the positive effects of CQ on performance in public banks is greater than the effects of CQ in private banks, but the results are reversed for EQ and ethical intelligence (i.e., a weaker effect in public banks than in private banks). This latter finding clearly points to the important role of context when assessing the effects of CQ.

7.2. Indirect effects

In the articles discussed in the previous section, cross-cultural adjustment and performance were recognized as two main effects of CQ. However, some researchers examined the relationship between adjustment and performance and found that CQ has an indirect effect on performance through cross-cultural adjustment. In this section, we discuss the studies that investigated indirect effects of CQ. These studies are summarized in Table 4b.

Insert Table 4b about here

The general finding is that the link between CQ and performance is mediated by cultural adjustment. For example, Lee and Sukoco (2010) examined the relationship among CQ, cultural adjustment, cultural effectiveness, and expatriate performance and found that cultural adjustment and cultural effectiveness fully mediate the positive effects of overall CQ on performance. More recent work by Lee and colleagues (Lee & Kartika, 2014; Lee, Veasna, & Sukoco, 2014) refined these findings, and the scholars noted that moderators such as psychological contract and organizational support strengthen the relationship between CQ and adjustment. Jyoti and Kour (2017) also found that perceived social support and previous experience strengthen the relationship between CQ and adjustment. A mediating path from CQ through cultural adjustment to task performance was also confirmed with managers working in banks in India (Jyoti & Kour, 2015) and expatriates in Malaysia-based multinational corporations (MNCs; Malek & Budhwar, 2013).

In addition to cross-cultural adjustment, other mediators, such as culture shock, have been shown to have a partially mediating effect on the relationship between CQ and performance (M. L. Chen, Lin, & Sawangpattanakul, 2011). A. S. Y. Chen (2015) found that work adjustment partially mediates the relationship between CQ and job involvement. Relating CQ to export performance, Charoensukmongkol (2015, 2016) focused on the relationship between entrepreneurs' CQ and the export performance of small and medium manufacturing firms in Thailand and showed that the quality of the relationship among entrepreneurs, their foreign customers and suppliers, and knowledge-acquisition capability fully mediates the positive effects of overall CQ on export performance.

CQ has also been found to have a positive effect on knowledge sharing, mediated by knowledge-sharing willingness (Collins, Chou, Warner, & Rowley, 2017) and social capital (Tsai, Joe, W. Lin, Wu, & Cheng, 2017). Different dimensions of CQ are mediated by different dimensions of social capital: Metacognitive CQ and motivational CQ are related to

knowledge sharing via the mediation of trust, shared vision, and social interaction, the effect of behavioral CQ works through trust and shared vision but not social interaction, and indirect effects of cognitive CQ are mediated only through trust. Furthermore, Jiang, Le, and Gollan (2017) found that migrant workers with high CQ are better at suggesting constructive ideas and persuading others to accept their suggestions and that the quality of communication between these migrant employees and their managers partially mediates this effect.

Gonçalves, Reis, Sousa, Santos, and Orgambídez-Ramos (2015) examined the influence of CQ on choice of conflict management styles. CQ was found to positively predict the choice of appropriate conflict management styles, and this is partially mediated by self-monitoring and self-interdependency. Metacognitive CQ was found to directly predict the use of an integrating style, which is considered the most effective style in conflict resolution (Rognes & Schei, 2010). Tuan (2016) recently examined the effects of CQ on supply chain management mediated by corporate social responsibility (CSR) and trust. CQ aspects were positively correlated with two facets of CSR (ethical and legal), as well as two facets of trust (identity-based and knowledge-based), which, in turn, were positively correlated with supply chain performance.

7.3. Mediating effects

CQ has also been used as a mediating variable, fully or partially bridging the correlations between antecedents, such as intercultural experience and personality, and results, such as better performance and creativity. We identified ten studies that looked at the mediating effects of CQ. Apart from overall CQ, motivational CQ was the most adopted mediator of all four CQ dimensions and was examined in six of the ten articles in this category, while other dimensions of CQ were mentioned much less frequently. CQ was also

more frequently found to have a full mediation effect, as opposed to partial mediation. These studies are summarized in Table 4c.

Insert Table 4c about here

Intercultural experience is thought to improve leadership, creativity, and innovation, yet such effects need to be mediated by CQ. Kim and Van Dyne (2012) found that overall CQ mediates the effects of previous intercultural contact on international leadership potential. In a very recent study, Hu, Gu, Liu, and Huang (2017) found that overall CQ partially mediates the relationship between intercultural experience and creativity. They also found that social media usage for socializing purposes, such as keeping in touch with friends, strengthens the positive effects of multicultural experience on CQ, while social media usage to get information has no such moderating effects. Korzilius, Bücker, and Beerlage (2017) found that individuals who label their cultural background as bi- or multicultural more often have innovative ideas than individuals with a monocultural background. Overall CQ and its dimensions, especially metacognitive, motivational, and behavioral CQ, mediate such effects.

Personality and other individual differences have also been recognized as antecedents of CQ. Remhof, Gunkel, and Schlägel (2013, 2014) examined German students' intention to work abroad and found that although variables such as language skill, social network, and personality have a positive connection with such an intention, CQ is needed to fully mediate their effects. In a recent study, Lie, Suyasa, and Wijaya (2016) found overall CQ fully mediates the relationship between openness to experience and job satisfaction. Yunlu and Clapp-Smith (2014) reported that cultural psychological capital (composed of four state-like capacities: hope, optimism, self-efficacy, and resilience) is positively related to motivational CQ, which is positively related to metacognitive awareness. Furthermore, Presbitero (2017a) found that language ability is positively linked to task performance in an international call center, and this effect was fully mediated by motivational CQ. Thus, motivational CQ plays a

more critical role in achieving better performance than fluency in foreign languages alone. L. Wang, K. T. Wang, Heppner, and Chuang (2017) also found that overall CQ fully mediates the relationship between language proficiency and international students' satisfaction with life.

8. Moderating effects of cultural intelligence

The research reviewed above provides a picture of the effects of CQ on psychological well-being, interpersonal effectiveness, as well as performance. Another important issue is the power of CQ as a moderator: When is CQ expected to interact with other variables? Studies of the moderating effects of CQ are summarized in Table 5.

Insert Table 5 about here

CQ has been found to be an important moderator in various contexts, including expatriation (Froese, Kim, & Eng, 2016), business travel (Ramsey, Leonel, Gomes, & Monteiro, 2011), education (Jie & Harms, 2017), export (Magnusson, Westjohn, Semenov, Randrianasolo, & Zdravkovic, 2013), international study (Presbitero, 2016b; Volpone, Marquardt, Casper, & Avery, 2018), intercultural service encounters (Lorenz, Ramsey, Tariq, & Morrell, 2017), and intercultural teamwork (Rosenauer, Homan, Horstmeier, & Voelpel, 2016). In general, CQ strengthens the relationship between intercultural differences and cross-cultural adjustment and performance (Lorenz et al., 2017; Magnusson et al., 2013; Rosenauer et al., 2016) and diminishes the relationship between such differences and adaption problems as strain (Ramsey et al., 2011). For example, Rosenauer et al. (2016) found that teams with higher national diversity have a better performance only when team leaders' CQ and task interdependence are high. Among the four aspects of CQ, metacognitive CQ is the dimension that most frequently shows statistically significant moderating effects, while motivational CQ seems to be the least important moderator.

Interestingly, the different aspects of CQ have also been shown to have opposite moderating effects. For example, motivational CQ was found to have a positive moderating effect on the relationship between expatriate supporting practices and adjustment, while metacognitive CQ and cognitive CQ have a negative moderating effect (Wu & Ang, 2011). The authors suggested that expatriates need to be intrinsically motivated to work overseas in order to benefit from expatriate support practices. Awan, Kraslawski, and Huiskonen (2018) also found that motivational CQ has a moderating effect in the opposite direction of the effects of metacognitive and behavioral CQ. Others also identified that CQ may have detrimental effects. When examining the relationship between travelers' stress and differences between host and home countries, Ramsey et al. (2011) found that travelers with higher CQ become more stressed when they travel to countries in which cultural-cognitive differences are more prominent.

In recent research, the dimensions of CQ have also been found to interact with one another. Relating cultural knowledge to creativity, Chua and Ng (2017) found that cognitive CQ and creativity have an inverted U-shaped relationship. Although cultural knowledge benefits creativity, too much knowledge has a detrimental effect because of cognitive overload and entrenchment. However, such relationships exist only when metacognitive CQ is low. When metacognitive CQ is high, cognitive CQ has no statistically significant effects on creativity.

9. Aggregated effects of cultural intelligence

Although CQ is defined as an individual-level construct, some studies measured CQ at the individual level and then aggregated the scores to the group level. This aggregation can be performed in several ways. For example, the CQ scores of the individuals in a group can be aggregated by using the sum or the mean of the individuals' scores. Other methods for

treating CQ data at the group level include using the score of the group members who have the highest or lowest CQ score or the CQ score of a specific member (e.g., the leader of the group); even the standard deviation of the scores may yield valuable insights. Studies of CQ at an aggregate level are shown in Table 6.

Insert Table 6 about here

At the dyadic level, most researchers examined which individual's CQ (the maximum or minimum CQ in the dyad) is strongest and related it to the outcome. Imai and Gelfand (2010) demonstrated that the minimum CQ score is enough to predict integrative behaviors in a negotiation simulation, which, in turn, predicts joint profits. However, Chua, Morris, and Mor (2012) found that the maximum CQ of a dyad predicts success in a creative collaboration task. Others have found effects related to the minimum and maximum CQ member; the minimum CQ in the dyad influences the frequency of collaborative behaviors, while the maximum CQ influences the quality evaluation of collaboration (Y. Li, Rau, H. Li, & Maedche, 2017). Therefore, it was suggested that global virtual collaboration can be improved by adjusting a team's CQ composition according to the team type or goals. Members with the highest CQ are crucial for task-oriented, temporary teams, while for stable, long-term teams, it is more important to help members with the lowest CQ level.

At the team level, either aggregated individual CQ scores or modified CQS items were used to measure team CQ. For example, "I enjoy interacting with people from different cultures" was changed to "Agents in my firm enjoy interacting with people from different cultures" (X. P. Chen, Liu, & Portnoy, 2012) and "People in my organization enjoy interacting with people from different cultures" (Froese et al., 2016). Four studies (X. P. Chen et al., 2012; Crotty & Brett, 2012; Magnusson, Schuster, & Taras, 2014; Moon, 2013) found team CQ works as a moderator. For example, Crotty and Brett (2012) reported that team members' individual metacognitive CQ is statistically significantly (positively) related

to creativity, and the team-level CQ magnifies such a relationship. Similarly, Froese et al. (2016) found that individual motivational CQ moderates the negative relationship between team motivational CQ and turnover intention.

Finally, two studies examined the direct and indirect effects of team CQ. M. L. Chen and C. P. Lin (2013) showed that three of the four aspects of CQ (the exception was the behavioral aspect) are positively related to knowledge sharing. Adair, Hideg, and Spence (2013) considered the composition of teams and found that in culturally heterogeneous teams, metacognitive CQ and behavioral CQ have a positive effect on shared values, while in culturally homogeneous teams, metacognitive CQ and motivational CQ have a negative effect. The authors suggested that the negative effect of CQ in culturally homogeneous teams could be because "the presence of culturally flexible and open-minded members" could "lead homogeneous groups to feel threatened and conflicted" (Adair et al., 2013, p. 955).

10. Qualitative research on cultural intelligence

The most common methodological approach to the empirical study of CQ has been quantitative. However, some examined CQ by using a qualitative approach. The 14 qualitative studies are summarized in Table 7.

Insert Table 7 about here

Most qualitative studies used interviews to collect data. Various topics were covered in these studies, including the dimensions and structure of CQ (Kaufman & Hwang, 2015), the distinctiveness of CQ compared to other constructs (Lee, 2010), the development of CQ (Schreuders-van de Bergh & Du Plessis, 2016), and firm-level CQ (Capatina et al., 2011). The most common research contexts were international business and education.

Differing from quantitative studies, qualitative researchers relied on a wider range of definitions and structures of CQ. For example, Oliver, de Botton, Soler, and Merrill (2011)

adopted Flecha's (2000) definition and viewed CQ as the ability to interpret one's own situation. Others (Capatina et al., 2011; Gertsen & Søderberg, 2010) adopted Plum, Achen, Dræby, and Jensen's (2008) definition of CQ as "the ability to make yourself understood and to establish a constructive partnership across cultural differences" (p. 19).

Most qualitative studies adopted the three-dimensional model of CQ (Thomas, 2006; Thomas et al., 2008), while some studies also identified aspects of CQ that were largely ignored in quantitative studies. For instance, Pless, Maak, and Stahl (2011) reported the following CQ dimensions: general knowledge about other cultures, culture-specific knowledge, cultural empathy and sensitivity, and being nonjudgmental. The recognition of culture-specific knowledge as an important aspect of CQ is particularly interesting because most CQ theory and measurement emphasized CQ as culture-general and not specific to certain cultures. Qualitative studies often focused on specific cross-cultural settings. For example, Kainzbauer and Hunt (2016) examined foreign teachers in graduate schools in Thailand and recognized specific features in classrooms in Thailand, such as hierarchy, authority with a kind heart, and collectivist group activities.

Qualitative studies on the development of CQ were tailored to specific training projects. Methods including narratives (Gertsen & Søderberg, 2010), dialogue (Oliver et al., 2011), and workshops (de Ramírez, 2015) were shown to be effective for CQ training. More particularly, qualitative data provided more details about the learning process. For example, Shapiro, Ozanne, and Saatcioglu (2008) recognized four stages for international buyers to increase CQ, while Kainzbauer and Hunt (2016) identified improvement of CQ as an ongoing learning process. By examining self-initiated expatriates, Schreuders-van de Bergh and Du Plessis (2016) found that development of motivational CQ slowed down at the starting phase because expatriates face too many new choices and explorations. Various projects also led to the improvement of different aspects of CQ. For example, Mosakowski, Calic, and Earley's

(2013) service-learning project had limited effects on behavioral CQ but enhanced metacognitive, cognitive, and motivational CQ, while de Ramírez's (2015) student-led workshops were more effective in improving metacognitive and behavioral CQ.

11. Future research suggestions

Having examined the progress in the CQ research reviewed, in this section, we discuss suggestions for further development of the field. Future research could focus on different elements to enhance understanding of CQ, for example, fundamental questions of what CQ is, how to measure CQ, and empirical evidence that could be added to the existing nomological framework. Below, we focus on five questions that we believe could benefit the CQ field.

11.1. Is cultural intelligence universal or cultural-specific? Defining the animal

There is no lack of definitions and models in cross-cultural competence. Rathje (2007) observed that a "dizzying amount of material can be explained to a great extent by the lack of any unity in the definition of the term 'intercultural competence' itself" (p. 254), and later asked fundamental questions, such as, "Is intercultural competence universal or culture-specific?" and "When is intercultural competence required?" (p. 256).

It is claimed that CQ is a culture-general construct (i.e., not bound to a specific culture) that emphasizes the capability to handle unfamiliar situations. Such a claim raises the practical question of how we should recognize and measure such culture-general abilities. We typically gain cultural knowledge from specific cross-cultural experiences that provide guidelines for "dos and don'ts" when communicating with people from another culture. However, such experiences and knowledge may not lead to success in contact with people from cultures other than the one(s) we are familiar with. Therefore, we need more universal

guidelines to direct us in various situations. To address such needs, Van Dyne et al. (2012) clarified that cultural-general knowledge and cultural-specific knowledge are complementary and are indispensable for cognitive CQ. Cultural-general knowledge provides major elements that constitute a cultural environment and explains why similarities and differences across cultures exist and how an individual is shaped by the environment in which he or she resides. Cultural-specific knowledge provides details about specific cultural contexts, and insider understanding of specific cultures helps us operate effectively and efficiently in specific cultural domains. However, the sample items in Van Dyne et al.'s (2012) study were limited in scope and focused on an organizational context. Further research should work on the cultural-general and cultural-specific domains of CQ and address practical questions about measurement. For example, should we expect a person to be culturally intelligent when he or she has experienced many cultures, or should he or she live in a certain number of cultures long enough to have acquired a deeper understanding of them?

Another noteworthy issue regarding the cultural-general perspective is the difference between intercultural competence and general social competence. Intercultural interaction is included in social interaction. As social intelligence can benefit interaction in general, it is necessary to justify why we still need specific intercultural competences such as CQ. In order to justify the distinctiveness of CQ as a unique construct, it might be advantageous to examine what the difference is between interaction with people from different cultural orientations and interaction with people from one's own cultural background. Future research could pay more attention to the specifics of such cultural diversity and examine more closely situational and contextual factors that trigger CQ to function in such settings.

11.2. Is it all in our head? The lack of objective measures of cultural intelligence

There are doubts about the self-assessment measures that dominate the research on CQ (Kealey, 2015). Thus, there have been several calls for the development of new, more objective measures. For example, Kumas-Tan, Beagan, Loppie, MacLeod, and Frank (2007) questioned an underlying assumption in measuring cross-cultural competence, that is, measuring participants' confidence in themselves and their feelings of comfort when interacting with others instead of measuring the capabilities or competencies of the participants. Kumas-Tan et al. (2007) argued that people who believe they are culturally aware and sensitive may underestimate how their ethnocentrism hampers their ability to be culturally competent, and "the more you experience another culture and learn, the more you realize what you don't know about people from other cultures" (p. 555).

Another consideration for self-assessments is, of course, "socially desirable" responses (Kealey, 2015). Participants may interpret the aim of the research and try to find the "right answer" rather than one that truthfully reflects their real competence, status, or attitude. CQ researchers have adopted certain procedures to avoid such social desirability bias. For example, Bücker et al. (2016) checked the correlation between CQ and the social desirability score and found a small correlation, below the 0.20 level. Varela and Gatlin-Watts (2014) also considered social desirability bias by cross-validating CQ measures, especially the cognitive and behavioral facets. The authors added multiple-choice items to measure cultural knowledge and asked participants to answer how they should behave in a number of specific cross-cultural situations.

Thus, the development of objective measures of CQ could help overcome the underlying assumption and social desirability problems. In a recent paper, Cumberland, Herd, Alagaraja, and Kerrick (2016) suggested adopting multiple assessment methods to measure cultural knowledge and skills. Apart from self-report measures, methods such as situational judgement tests (SJTs) and computer simulations could provide situations that would occur in

cross-cultural encounters and a set of possible responses to address the situations. The participants are asked to rate these responses, identify the most appropriate choice, and decide how they should behave. For example, using SJT methods with scenarios describing telephone conversations between expatriates and their local customers, ethnocentrism and empathy were measured by ranking several alternative responses (Ascalon, Schleicher, & Born, 2006). Observations could also be used to measure the frequency of cultural-appropriate behaviors in field studies (Ruben & Kealey, 1979) and in simulation games, or participants asked to identify cultural-related issues in images and scenarios. Alon et al. (2016) added true/false statements such as, "A knife is not an appropriate gift in Russia" to their CQ measurement scale to measure participants' "hard knowledge" about specific cultures and to cross-validate the results with self-report results of cognitive CQ. Further research could pay closer attention to the development of more objective measures of CQ. However, researchers should be careful to put an equal sign between cultural-appropriate behaviors and CQ. Having the capability to behave properly does not necessarily mean actually behaving in such ways.

11.3. Can I learn this? How cultural intelligence can be developed

Although previous research showed the effectiveness of various training methods for improving CQ, the process of CQ learning and development was rarely discussed. For example, we may wonder whether CQ increases linearly during the learning period or whether a learning curve exists. Promisingly, recent research indicated that the learning effects may persist for one month (Erez et al., 2013) and even six months (Reichard et al., 2014) after CQ training has been completed. However, more studies concerning the duration of effects and their rate of fading would be useful. In addition, the generalizability of the learning for use across cultural contexts could be investigated.

Furthermore, except for some qualitative results (Schreuders-van de Bergh & Du Plessis, 2016; Shapiro et al., 2008), we know little about the details of the development of CQ, for example, how many stages people experience while they develop their CQ and which aspects of CQ should be developed first for others to improve. Future research on CQ development may obtain valuable information from existing stage and learning cycle models. For example, Hammer and Bennett (2009) recognized six stages (denial, defense, minimization, acceptance, adaptation, and integration) in the development process of intercultural sensitivity that indicate the progression of one's worldview while accumulating intercultural experiences. Thomas et al. (2008) suggested that the process of developing cultural intelligence is not linear but a loop process. It could be beneficial for CQ researchers to adopt similar developmental models and frameworks, as more empirical evidence will be needed in the future to establish a more detailed understanding of the learning process of CQ.

11.4. Too much of a good thing? Considering the negative effects of cultural intelligence

CQ is—similar to other concepts of intelligence—essentially a positively loaded word. However, future research may (re)consider the "halo effect" of CQ, which automatically links it to successful results. Gelfand, Imai, and Fehr (2008) noted that researchers should "be mindful of the positive halo that currently exists around CQ" (p. 381) and questioned the general assumption that high CQ consistently brings positive outcomes. It is reasonable to suggest that under certain circumstances, people with higher CQ might take advantage of others with the help of their cross-cultural knowledge to try to benefit themselves, thus, likely reducing the total benefit to the group.

Similarly, identity security theory also suggests that high-level CQ may challenge the security of one's self-identity and "decrease an individual's basic sense of belongingness" (Gelfand et al., 2008, p. 382). Social identity theory suggests that group members belonging

to certain cultural groups need a certain degree of distinctiveness and react negatively if this group distinctiveness is threatened by outsiders (Francis, 1991). Thus, a substantial adaptation could be recognized as a threat and lead to suspicion and caution rather than kindness.

Previous reviews have called for "divorcing" intercultural competence from positive results and suggested that future research should also consider negative effects of CQ (Rathje, 2007). However, to date, there has been little research on the negative results of CQ. Rare exceptions are Ramsey et al. (2011), who found that higher CQ leads to more stressed travelers, and Chua and Ng (2017), who found that cognitive CQ and creativity have an inverted U-shaped relationship rather than a linear relationship. The introduction of power distribution and social network analysis may also be relevant for digging into the dark side of CQ, which enables people with higher CQ to take advantage of others.

11.5. Bundle of sticks? Expanding cultural intelligence to the team and organizational levels

CQ was originally defined as an individual capacity that explains individual-level variation, and most CQ studies were conducted at the individual level. However, researchers in the field have repeatedly called for higher-order CQ research that extends above the individual level (Ang et al., 2015; Gelfand et al., 2008; Ng et al., 2012), in order to seize the "many exciting research opportunities for organizational behavior and strategy scholars" (Ng et al., 2012, p. 48). Nevertheless, we must be careful when discussing issues such as "group CQ" or "organizational CQ," as these terms could refer to the cultural intelligence of individual members of a group or organization and to the cultural intelligence of the organization. To expand a microlevel construct of intelligence to macrolevel organizational intelligence, Glynn (1996) identified three sets of mechanisms: (a) the aggregation model, which recognizes organizational intelligence as an aggregation of its individual members'

intelligence; (b) the cross-level model, which recognizes organizational intelligence as the mechanisms that transfer and encode individual intelligence in an organization's systems; and (c) the distributed model, which recognizes organizational intelligence as "the richness and ecological validity of an organization's systemic interaction patterns" (p. 1091).

Previous CQ research mainly adopted the aggregation model and measured team CQ as the average score of the team members' individual CQ scores (Adair et al., 2013; Crotty & Brett, 2012; T. Moon, 2013), Organizational CQ has also been examined at the distributed level, focusing on the organization's systems, patterns, and mechanisms. Referring to theories such as the resource-based view of the firm and dynamic capabilities (Teece, Pisano, & Shuen, 1997), organizational CQ has been identified as capabilities that help an organization gain competitive advantages in global markets. Conceptual frameworks and measurement tools for organizational CQ have been developed following this line of research (Ang & Inkpen, 2008; T. Moon, 2010b; Yitmen, 2013). However, to date, few CQ studies have adopted cross-level models. Individual CQ has been linked to group-level effects, such as team effectiveness (Khani et al., 2011), team interaction quality (Charas, 2015), and knowledge-sharing behavior (Collins et al., 2017). Nonetheless, we need more knowledge about how CQ is formed by the processes of knowledge sharing, knowledge transfer, and team interaction. Situational factors may be important in these interactions as people may behave differently while dealing with business partners, friends, opponents, and so on, and such differences cannot be found without expanding the research to higher orders beyond individual CQ. Important factors for dyad- and group-level research may include power, competitive/cooperative settings, and emotions, which leaves plenty of room for the future development of CQ research.

Future research could also address aggregated-level CQ by examining the distribution of CQ within a group. For example, which CQ score is the most effective predictor of dyadic

or group performance: the higher, the lower, the average, the variance, or the CQ of a specific individual (e.g., the leader)? The answer seems to depend on the nature of the task and various environmental factors. For example, when a person with high CQ negotiates, he or she could adopt a fixed-pie assumption and try to gain benefits from his or her opponent through CQ advantages. However, he or she could adopt a win-win assumption, and his or her high CQ could benefit communication and cooperation. Empirical studies at the dyadic level have also suggested that it is beneficial to adjust the team's CQ composition according to team type or goals (Y. Li et al., 2017). Therefore, considering the type of team and its composition would be useful when examining CQ at the aggregate level.

11.6. Conclusion

The trends of technological development and globalization demand deeper answers to the following question: "Why are some people more effective in cross-cultural settings than others?" In response, previous literature has provided an abundance of constructs, models, and measurements. CQ is one promising concept that first appeared in the field in 2003, and as shown in this review, has received much attention since then. Of course, CQ is not the only candidate in the field of intercultural competence, and other domains of investigation exist which have long examined this issue but with somewhat different language (Kealey, 1979; Ruben, 2015; Ruben & Kealey, 1979). In these investigations, parallel concepts are often applied, however, the core questions and the identified challenges are the same, but the nomenclature applied is different.

To prove that CQ is more than just hype, we collected and examined 142 empirical articles, and found promising results concerning the measurement, antecedents, development, and effects of CQ, as well as the use of CQ at the aggregate level. In particular, results from recent years contributed valuable knowledge to the field. Articles published since 2015

provided new measurement tools, new variables, as well as more detailed and complex results. However, recent articles also questioned established theories and measurement methods of CQ, calling for renewed efforts regarding gathering information about contexts and more details about the process of developing CQ. In this article, we suggested that future research should pay more attention to the culture-specific aspects of CQ, the negative effects of CQ, as well as higher-order CQ. The list is not meant to be exhaustive. However, we hope this contribution inserts a valuable piece into the whole CQ puzzle.

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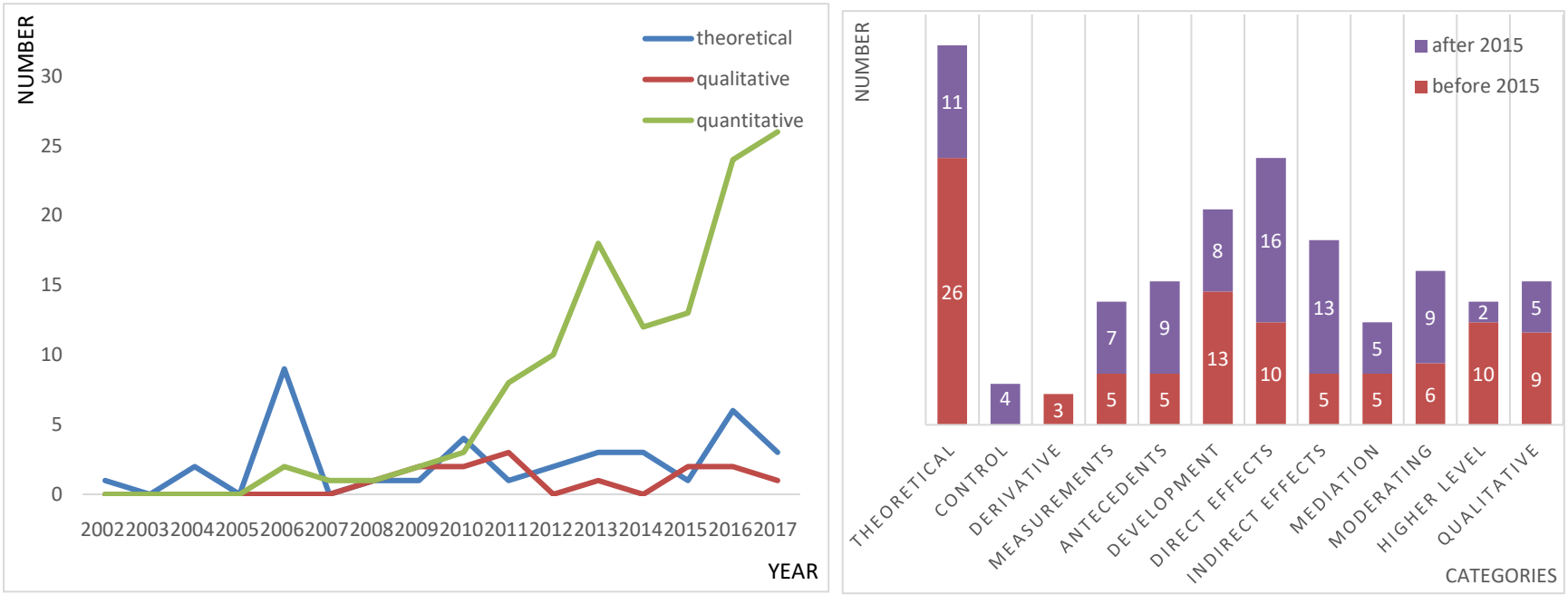

Fig. 1. Overview of research on cultural intelligence (CQ).

Table 1

Measurement and validity of cultural intelligence.

Author and year	Scale	Results
Ward et al. (2009)	CQS	Proposed four-factor model of CQ was confirmed. CQ was distinct from general cognitive ability and multicultural personality but had a strong correlation with EQ. CQ failed to predict adjustment over and above EQ, general cognitive ability, and multicultural personality.
Moon (2010a)	CQS	CQ and EQ were distinct but related constructs. EQ factors related to social competence (social awareness and relationship management) explained CQ over and beyond the EQ factors related to self-competence (self-awareness and self-management).
Crowne (2013)	CQS	CQ and EQ were distinct but related constructs. Social intelligence failed to be superordinate to EQ and CQ.
Klafehn et al. (2013)	CQS-Peer-report measures	CQ was distinct from Big Five personality dimensions. Peer-report measures were better at assessing CQ than self-report measures. Self-reported metacognitive CQ failed to predict sociocultural adaptation.
Sahin et al. (2013)	CQS-Turkish	Proposed four-factor model of CQ was confirmed in the Turkish context. CQ was distinct from EQ and Big Five personality dimensions. CQ predicted task performance over and above EQ.
Moyano et al. (2015)	CQS-Spanish	Proposed four-factor model of CQ was confirmed with the Spanish version. Only motivational dimension of CQ had a significant positive correlation with self-esteem.
Thomas et al. (2015)	Short form measure of cultural intelligence (SFCQ)	A 10-item scale was used to measure three dimensions of cultural intelligence: cultural knowledge, skills, and metacognition. Sample questions include: I know the ways in which cultures around the world are different. (K); I can change my behavior to suit different cultural situations and people. (S); I am aware of the cultural knowledge I use when interacting with someone from another culture. (M)
AL-Dossary (2016)	CQS-Arabic	Four-dimensional structure of CQ was confirmed in a Saudi Arabian context. CQS showed adequate internal consistency and test-retest reliability.
Alon et al. (2016)	Business cultural intelligence quotient (BCIQ)	BCIQ measurement includes 18 self-report questions and 20 true/false questions. Sample questions include: I am open to new ideas, people, and culture. (C); I pay close attention to how my words affect the people with whom I interact. (L); I read editorials on international business. (M); A knife is not an appropriate gift in Russia. (True/False)
Bücker et al. (2016)	CQS (20-item and 12-item short versions)	In a comparison of the CQ results for Chinese and Dutch samples, the short 12-item CQS version showed good discriminant validity and cross-cultural invariance, which is lacking in the full 20-item CQS version.

Schlägel & Sarstedt (2016)	CQS	In a comparison of CQ results across five countries (China, France, Germany, Turkey, and the US), partial measurement invariance was established only between the Turkish and U.S. samples. The Chinese sample showed a lack of discriminant validity between metacognitive and behavioral dimensions. Metacognitive CQ and behavioral CQ had no significant effect on expatriation intention.
Putranto et al. (2018)	CQS	Overall CQ and all CQ components were positively correlated with EQ. CQ was negatively correlated with students' performance measured by GPA, while EQ was positively correlated with students' performance.

Note. CQ = Cultural intelligence; CQS = Cultural Intelligence Scale; EQ = Emotional intelligence; GPA = Grade point average.

Table 2

Antecedents of cultural intelligence.

Author and year	Antecedents	Results
Ang et al. (2006)	Big Five personality	Conscientiousness was positively related to metacognitive CQ; agreeableness and emotional stability were related to behavioral CQ positively and negatively, respectively; extraversion was positively related to all aspects except metacognitive CQ; and openness was positively related to all four CQ aspects.
Crowne (2008)	Intercultural experience	Individuals who have been abroad have higher CQ. Employment abroad was positively related to overall and metacognitive CQ while education abroad was positively related to overall CQ and all four CQ aspects. Depth of cultural exposure also increased CQ.
Harrison (2012)	Big Five personality, Intercultural experience, Language ability, International orientation	Agreeableness and openness were positively related to overall CQ. The extent to which the individuals were exposed to a multicultural environment positively was related to overall CQ. Language ability and international orientation were positively related to overall CQ.
Li et al. (2013)	Intercultural experience	Length of previous experience was positively related to overall CQ and all four aspects of CQ. The relationship was strengthened when participants had divergent learning styles, which emphasized concrete experience and reflective observation.
Moon et al. (2013)	Intercultural experience, Contextual variables, Self-monitoring	Previous work experience in an overseas department was positively related to cognitive CQ, and experience with foreigners in one's home country was positively related to metacognitive CQ. Number of co-expatriates from one's home country and number of local employees in the host country were related to CQ aspects negatively and positively, respectively. Perceived promotion opportunity after expatriation was positively related to metacognitive CQ and motivational CQ. Self-monitoring was positively related to all aspects of CQ.
Nel et al. (2015)	Identity (personal, multi-ethnic, religious), Personality	Intellect, facilitating, and ethnic identity were positive predictors of metacognitive CQ. Ethnic identity was a positive predictor and religious identity was a negative predictor of cognitive CQ. Soft-heartedness, facilitating, extroversion, and religious identity were positive predictors for motivational CQ. Soft-heartedness and conscientiousness were positive predictors of behavioral CQ.
Adair et al. (2016)	Context dependence	Individuals who were more dependent on context cues in communication had higher overall CQ.
Depaula et al. (2016)	Big Five personality, Social intelligence	Openness was a positive predictor of overall CQ. Social intelligence was a positive predictor of overall CQ over and above other predictors.
Holtbrügge & Engelhar (2016)	Cultural boundary Spanning (CBS)	Cultural boundary spanners, who respect others' values and respond depending on situational cues, had higher CQ in all four dimensions. CBS mediated the indirect relationship between motivation to study abroad and CQ.
Li et al. (2016)	Big Five personality	When agreeableness was high, openness was positively related to all CQ aspects except motivational CQ; when agreeableness was low, no such relationship existed.

Bernardo & Presbitero (2017)	Polyculturalism, multiculturalism	Polyculturalism predicted overall CQ in both samples (Australian and Chinese) examined in the study and predicted the difference in CQ between these two samples. Multiculturalism predicted only overall CQ in the Chinese sample.
Kurpis & Hunter (2017)	Intercultural experience	Study-based intercultural experience was positively related to all aspects of CQ except metacognitive CQ. Work-/travel-based intercultural experience was positively related to all aspects of CQ.
Pekerti & Arli (2017)	Intercultural experience	In a comparison of samples of Australians, Indonesians, and Indonesian migrants in Australia, migrants were found to have the highest CQ levels.
Schwarzenthal et al. (2017)	Intercultural experience	Heritage cultural exploration and intercultural contact positively predicted all aspects of CQ. Age did not correlate with CQ.

Note. CQ = Cultural intelligence.

Table 3

Development of cultural intelligence.

Author and year	Length of intervention	Training approaches	Results
Fischer (2011)	4 weeks	Lectures, Simulation game, Behavior training	Cognitive CQ decreased. More open-minded students at Time 1 were more likely to report increases in motivational CQ at Time 2.
MacNab et al. (2012)	6 to 8 weeks	Experiential training projects	General self-efficacy and optimal contact conditions (equal status, mutual goals, personal contact, and organizational support) were positively related to the development of overall CQ.
MacNab & Worthley (2012)	6 to 8 weeks	Experiential training projects	General self-efficacy was positively related to the development of overall CQ and three aspects of CQ (metacognitive, motivational, and behavioral). Previous international travel experiences did not have a meaningful relation with CQ development.
Rehg et al. (2012)	9 days	Lectures	Cognitive CQ and behavioral CQ improved. Self-efficacy was positively related to all aspects of CQ after training but not before training.
Eisenberg et al. (2013)	1 to 12 weeks	Cross-cultural management course	Overall CQ improved after training; no such effects observed for control group. Course has stronger effects on metacognitive CQ and cognitive CQ than motivational CQ and behavioral CQ.
Erez et al. (2013)	4 weeks	Virtual multicultural team project	Overall CQ improved, and this effect lasted for six months after the project had ended. Trust at the team level moderated the project's effect on team members' CQ: there were significant CQ increases at medium and high levels of team trust, and only a marginally significant increase at low levels of team trust.
Rosenblatt et al. (2013)	6 to 8 weeks	Experiential training projects	Time 1 CQ was negatively correlated with CQ development, while Time 2 CQ was positively correlated with CQ development. Participants who perceived optimal intercultural contact were more likely to experience expectancy disconfirmation, which was associated with greater CQ development.
Taras et al. (2013)	2 months	Virtual multicultural team project	Motivational CQ improved.
Buchtel (2014)	12 weeks	Cultural psychology course	Metacognitive CQ improved; no such effects were observed in the control group.
Reichard et al. (2014)	2 hours	Classroom training, Group work, Role-play	Overall CQ improved; this effect lasted for one month after the training ended.

Sahin et al. (2014)	6 months	Deployment mission	All four CQ aspects improved. Individuals with higher extraversion improved metacognitive CQ and behavioral CQ more than did individuals low on extraversion. Individuals with higher openness improved motivational CQ more than individuals with low openness.
Varela & Gatlin-Watts (2014)	65.31 days (in average)	International exchange study	Metacognitive CQ and cognitive CQ improved. When cultural distance increased, development of metacognitive CQ was less predictable from preexisting levels.
Wood & St. Peters (2014)	11/12 days	Short-term study tour	All CQ aspects except behavioral CQ improved.
Bücker & Korzilius (2015)	N/A	Cultural simulation game, Role-play	Overall CQ and all aspects except cognitive CQ improved. Only the increases for overall CQ and metacognitive CQ were larger in the experimental group than in the control group.
Ko et al. (2015)	7 weeks	Distance course with partners from Korea	Behavioral CQ improved.
Reichard et al. (2015)	4 hours	Classroom training	Overall CQ improved. Level of engagement was related to CQ at Time 2 but not at Time 1.
McRae et al. (2016)	4 months	Exchange program	Overall CQ and three of four CQ aspects improved (excluding motivational CQ). Students working abroad improved more on metacognitive and behavioral CQ, while students studying abroad increased more on cognitive CQ.
Ramsey & Lorenz (2016)	16 weeks	Cross-cultural management course	Overall CQ improved; no such effects observed for control group. Overall CQ after the course was positively related to students' academic satisfaction.
Chao, Takeuchi, & Farh (2017)	1 semester	Exchange program	Overall CQ and all four CQ aspects improved.
Presbitero & Toledano (2017)	6 months	Lectures, Role-play Case study	Overall CQ improved; CQ level after training was positively related to individual-level task performance, and contact intensity moderated this effect.
Alexandra (2018)	6–8 weeks	Experiential training projects	Overall CQ improved. Social dominance orientation was negatively related to CQ development. The prosperity to change stereotypes mediated this effect.

Note. CQ = Cultural intelligence.

Table 4a

The effects of cultural intelligence: direct effects.

Author and year	Dependent variables	Results
Templer, Tay, & Chandrasekar (2006)	Cross-cultural adjustment	Global professionals' motivational CQ was positively related to all three cross-cultural adjustment factors (work, general, and interaction) after controlling for accuracy of their expectations about job and living conditions abroad. The effect of motivational CQ on work and general adjustment was over and above that of the control variables.
Joardar et al. (2007)	Group acceptance	Newcomer's CQ (indicated by prior experience and reputation for establishing a relationship with the host culture) was positively related to group acceptance of the relevant newcomer.
Groves & Feyerherm (2011)	Leader performance, Team performance	Leaders' overall CQ was positively related to leader performance and team performance on culturally diverse working teams, over and above EQ. Team diversity positively moderated the relationship between CQ and performance.
Khani et al. (2011)	Team effectiveness	Overall CQ and all four facets were positively related to group effectiveness. Motivational CQ and behavioral CQ predicted team effectiveness.
Rockstuhl et al. (2011)	Leadership effectiveness	Overall CQ was positively related to cross-border leadership effectiveness but not to general leadership effectiveness, after controlling for general mental ability, EQ, and personality.
Ward et al. (2011)	Adaptation problems	Motivational CQ negatively predicted adaptation problems (psychological symptoms and sociocultural difficulties). Controlling for age, gender, length of residence abroad, and region of origin, the overall amount of variance explained by the model was not significant.
Lin et al. (2012)	Cross-cultural adjustment	Both overall CQ and all four aspects of CQ were positively related to cross-cultural adjustments, after controlling for gender, age, previous overseas experience, and language ability. EQ positively moderated the relationship between CQ and cross-cultural adjustment.
Grand et al. (2013)	Accuracy in identifying biased items	No CQ aspects (metacognitive, cognitive, and behavioral) were significantly related to accuracy to identify biased items in a verbal ability test.
Bücker et al. (2014)	Anxiety, Job satisfaction	Overall CQ was negatively related to anxiety and positively related to job satisfaction and communication effectiveness.
Huff et al. (2014)	Cross-cultural adjustment	Motivational CQ was positively related to all three cross-cultural adjustment factors (work, general, and interaction) over and above the Big Five personality dimensions.
Guðmundsdóttir (2015)	Cross-cultural adjustment	Metacognitive CQ was positively related to all three cross-cultural adjustment factors (work, general, and interaction); motivational CQ was positively related to general and interaction adjustment.
Lisak & Erez (2015)	Leadership emergence	Individuals with higher overall CQ, global identity, and openness to diversity (H-H-H pattern) were more likely to emerge as leaders than were other team members in virtual team projects.

Arli et al. (2016)	Alcohol consumption	Overall CQ was significantly related to hazardous alcohol use but not to harmful alcohol use and dependence symptoms for the Australian sample. For the non-Australian sample, CQ was not significantly related to alcohol consumption.
Aslam et al. (2016)	Career success, Managerial effectiveness	Overall CQ had insignificant link with either career success or managerial effectiveness, while EQ was the strongest predictor of these variables.
Collins et al. (2016)	Latino students' achievement	U.S. school principals' overall CQ was positively related to Latino students' achievement in their schools, while teachers' CQ level had no such effects.
Presbitero (2016a)	Task performance	All four aspects of CQ were positively related to task performance in virtual teams.
Zhang & Oczkowski (2016)	Cross-cultural adjustment	Motivational CQ was positively related to cross-cultural adjustment. Cultural distance asymmetry failed to show a moderating effect on relationship between CQ and cross-cultural adjustment.
Delpechitre & Baker (2017)	Adaptive selling behaviors, Role-play performance	Students with higher CQ are able to adjust their selling behaviors well and to perform at a higher level in their role-play presentations in a cross-cultural selling situation.
Daryani et al. (2017)	Bank performance	Overall CQ was positively related to bank performance. Effects of CQ on public bank performance were more significant than their effects on private banks, while emotional and ethical intelligence had greater effect on private bank performance.
Luu (2017)	State suspicion	Employee perceptions of supervisors' CQ level (both overall CQ and all four dimensions) were negatively related to employees' state suspicion. Motivational CQ and behavioral CQ had stronger effects than metacognitive CQ and cognitive CQ.
Presbitero (2017b)	Adaptation	Overall CQ was positively related to psychological and sociocultural adaptation. Intrinsic motivation moderates the relationship between CQ and adaptation.
Ramsey et al. (2017)	Transformational leadership	Overall CQ was positively related to global leaders' transformational leadership behaviors. International experience strengthened such relationship.
Shu et al. (2017)	Cross-cultural adjustment	All four dimensions of CQ were positively related to cross-cultural adjustment. For interaction adjustment, extraversion had a predictive power over and above CQ. For school-related adjustment, conscientiousness had a predictive power over and above CQ.
Solomon & Steyn (2017)	Leadership	Leader's metacognitive CQ and motivational CQ were positively related to empowering leadership, while all dimensions except behavioral CQ were positively related to directive leadership. The correlation between CQ and empowering leadership was stronger than the correlation between CQ and directive leadership.
Wang (2016)	Work performance	Overall CQ was positively related to expatriates' job performance.
Young, Haffejee, & Corsun (2017)	Ethnocentrism	Overall CQ and all dimensions of CQ except cognitive CQ were negatively related to ethnocentrism. Only motivational CQ significantly predicted the change in ethnocentrism after a 4-week mentoring program.

Note. CQ = Emotional intelligence; EQ = Emotional intelligence.

Table 4b

The effects of cultural intelligence: indirect effects.

Author and year	Dependent variables	Mediators	Results
Lee & Sukoco (2010)	Individual performance	Cultural adjustment, Cultural effectiveness	Cultural adjustment and cultural effectiveness fully mediated the positive effects of overall CQ on performance. International work and travel experience can enhance cultural adjustment and effectiveness in the situation of higher CQ but can reduce it with lower CQ.
Chen et al. (2011)	Individual performance	Culture shock	Culture shock partly mediated the positive effects of overall CQ on performance.
Malek & Budhwar (2013)	Performance (task contextual)	Cross-cultural adjustment (general, work, interaction)	Interaction CQ (motivational and behavioral) was directly related to contextual performance. Interaction adjustment mediated the positive effects of awareness CQ (metacognitive and cognitive) and interaction CQ on performance (task and contextual); work adjustment mediated the effects of both CQ facets on task performance.
Lee & Kartika (2014)	Performance	Cross-cultural adjustment	Overall CQ was positively related to cross-cultural adjustment, which, in turn, was positively related to better performance. Higher levels of psychological contract and organizational support strengthened the positive effects of CQ on expatriate adjustment.
Lee et al. (2014)	Cultural effectiveness	Cross-cultural adjustment	Cultural adjustment fully mediates the positive effects of overall CQ on cultural effectiveness.
Charas (2015)	Team interaction quality	Task performance, Profitability	Team interaction quality mediated the positive effects of overall CQ on task performance and profitability.
Chen (2015)	Job involvement	Work adjustment	Work adjustment partially mediated the relationship between overall CQ and job involvement. Intercultural training magnified the positive effects of overall CQ on work adjustment.
Gonçalves et al. (2015)	Conflict management style	Self-monitoring, Self-interdependence	Self-monitoring and self-interdependence partially mediated the relationship between overall CQ and conflict management style. Metacognitive CQ predicted the integrating style of conflict management.
Charoensukmongkol (2015)	Export performance	Quality of relationship	Quality of relationship between entrepreneurs and foreign customers, as well as suppliers, fully mediated the positive effects of overall CQ in export performance.
Jyoti & Kour (2015)	Task performance	Cultural adjustment	Cultural adjustment fully mediated the positive effects of overall CQ on task performance.

Charoensukmongkol (2016)	Export performance	Knowledge-acquisition capability	Knowledge acquisition capability fully mediated the positive effects of overall CQ on export performance.
Tuan (2016)	Supply chain performance	Corporate social responsibility (CSR), Trust	All four facets of CQ were positively correlated with two facets of CSR (ethical and legal), as well as two facets of trust (identity-based and knowledge-based), which, in turn, were positively correlated with supply chain performance. Economic CSR and calculation-based trust were negatively correlated with CQ dimensions, as well as supply chain performance.
Collins et al. (2017)	Knowledge-sharing behavior	Knowledge-sharing willingness	Knowledge-sharing willingness fully mediated the positive relationship between overall CQ and knowledge-sharing behavior.
Jiang et al. (2017)	Voice behavior	Leader-member exchange	Quality of the exchange relationship between the employee and the supervisor (leader-member exchange) partially mediated the positive relationship between CQ and voice behavior.
Jyoti & Kour (2017)	Job performance	Cross-cultural adjustment	Cross-cultural adjustment fully mediated the positive relationship between CQ and job performance. Perceived social support and previous experience strengthened this relationship.
Tsai et al. (2017)	Knowledge sharing	Social capital	CQ positively correlated with knowledge sharing through mediation of different dimensions of social capital. Metacognitive and motivational CQ were correlated with knowledge sharing via the mediation of trust, shared vision, and social interaction. Indirect effects of cognitive CQ were mediated only through trust; the effects of behavioral CQ were mediated by trust and shared vision but not social interaction.
Xu & Chen (2017)	Job creativity	Cultural learning	Metacognitive CQ and motivational CQ were positively correlated with cultural learning, which, in turn, were positively correlated with cross-cultural job creativity. Such effects were significant only in the condition of high domain learning and low cultural distance.
Lorenz, Ramsey, & Richey (2018)	Innovativeness	Opportunity recognition	Metacognitive CQ and cognitive CQ were positively correlated with opportunity recognition, which, in turn, were positively correlated with innovativeness. Qualitative data also confirmed the importance of CQ for opportunity recognition and innovativeness.

Note. CQ = Cultural intelligence.

Table 4c

The effects of cultural intelligence: mediation.

Author and year	Antecedents	Effects	Results
Kim & Van Dyne (2012)	Prior intercultural contact	Leadership potential	Overall CQ mediated the positive relationship of prior intercultural contact with international leadership potential; these mediation effects applied for majorities but not for minorities.
Moon, Choi, & Jung (2012)	Cross-cultural experience, Pre-departure training	Cross-cultural Adjustment	Motivational CQ fully mediated the relationships of previous international non-work experience and pre-departure training with general and work adjustments. Cognitive, motivational, and behavioral CQ played fully mediating roles.
Remhof et al. (2013)	Language skill, Prior experience, Networks abroad	Intention to work abroad	Cognitive CQ fully mediated the relationship between language skill and intention to work abroad; all four aspects of CQ fully mediated the relationship between prior experience and intention to work abroad, and partially mediated the relationship between networks abroad and intention to work abroad.
Remhof et al. (2014)	Personality	Intention to work abroad	Motivational CQ fully mediated the positive relationship between personality (openness and extraversion) and intention to work abroad.
Yunlu & Clapp-Smith (2014)	Cultural psychological capital	Metacognitive awareness	Cultural psychological capital was positively related to motivational CQ, which, in turn, was positively related to metacognitive awareness.
Lie et al. (2016)	Openness to experience	Job satisfaction	Overall CQ fully mediated the positive relationship between openness to experience and job satisfaction.
Hu et al. (2017)	Intercultural experience	Creativity	Overall CQ partially mediated the relationship between intercultural experience and creativity. Socializing social media usage strengthens the relationship between multicultural experiences and CQ, whereas informational social media usage does not strengthen this relationship.
Korzilius et al. (2017)	Multiculturalism	Innovative work behavior	Overall CQ and its four dimensions fully mediated the positive relationship between multiculturalism and innovative work behavior. Cognitive CQ has a smaller mediation effect than the other three dimensions.
Presbitero (2017a)	Language ability	Task performance.	Motivational CQ fully mediated the positive relationship between language ability and task performance.
Wang et al. (2017)	Personality	Psychological adjustment	Overall CQ fully mediated the positive relationship between antecedents (cultural reflection, social connectedness, language proficiency, time in host country) and satisfaction with life, and partially mediated the relationship between personalities (curiosity and exploration, perseverance, and perceived language discrimination) and satisfaction with life.

Note. CQ = Cultural intelligence.

Table 5

Cultural intelligence as a moderator.

Author and year	Independent variables	Dependent variables	Results
Elenkov & Manev (2009)	Leadership	Innovation	Greater overall CQ magnified the positive effect of expatriate leadership on organizational innovation, while no such effect was observed on product-market innovation. Of the four aspects of CQ, cognitive CQ and behavioral CQ had the strongest moderating effect on innovation.
Ramsey et al. (2011)	Institutional distance	Strain	Greater overall CQ diminished the positive effect of the normative and regulative dimensions of institutional distance on strain while magnifying the positive effect of the cultural-cognitive dimension of institutional distance on strain.
Wu & Ang (2011)	Supporting practices	Adjustment	Greater metacognitive CQ and cognitive CQ diminished the positive effect of expatriate supporting practices on adjustment, while motivational CQ magnified this effect.
Magnusson et al. (2013)	Environmental difference	Adaptation, Export performance	Greater metacognitive CQ magnified the positive effect of marketing-mix adaptations on export performance; greater motivational CQ magnified the positive effect of environmental differences and marketing-mix adaptations.
Mor, Morris, & Joh (2013)	Perspective taking	Cooperation	Greater metacognitive CQ diminished the positive effect of perspective taking on cooperation expectation and decision.
Lee, Veasna, & Wu (2013)	Leadership	Adjustment, Performance	Greater overall CQ magnified the positive effect of transformational leadership on adjustment and performance.
Presbitero (2016b)	Cultural shock, Reverse cultural shock	Adaptation	Greater overall CQ diminished the negative effects of culture shock and reverse cultural shock on students' psychological and sociocultural adaptation.
Rosenauer et al. (2016)	Nationality diversity	Diversity climate, Performance	Nationality diversity was positively related to diversity climate and performance only when overall CQ and task interdependence were high for team leaders.

Chua & Ng (2017)	Cognitive CQ	Creativity	Cognitive CQ and creativity had a U-shaped relationship. Too much knowledge had a detrimental effect because of cognitive overload and entrenchment. Such relationships existed only when metacognitive CQ was low. When metacognitive CQ was high, cognitive CQ had no significant effects on creativity.
Gölgeci, Swiatowiec-Szczepanska, & Raczkowski (2017)	Potential absorptive capacity	Innovativeness	Greater metacognitive and behavioral CQ magnified the positive effect of potential absorptive capacity on innovativeness.
Jie & Harms (2017)	Personal attitude	International entrepreneurship intention	Greater overall CQ diminished the positive effect of personal attitude on international entrepreneurship intention.
Lorenz et al. (2017)	Cultural differences	Willingness of behavior adaptation	Greater metacognitive CQ magnified the positive effect of perceived cultural difference on willingness of behavior adaptation.
Presbitero & Quita (2017)	Career adaptability	Overseas career intention	Greater overall CQ magnified the positive effect of career adaptability on overseas career intention.
Awan et al. (2018)	Relational governance	Commitment to sustainability	Greater metacognitive CQ and behavioral CQ magnified the positive effect of relational governance on sustainability commitment, while motivational CQ diminished such effect.
Volpone et al. (2018)	Self-perceived minority status	Host country acculturation	Greater overall CQ magnified the positive effect of self-perceived minority status on acculturation.

Note. CQ = Cultural intelligence.

Table 6

Aggregated effects of cultural intelligence.

Author and year	Task	Aggregation level	Results
Imai & Gelfand (2010)	Dyadic negotiation simulation	Individual CQ in dyad	The negotiators with the minimum CQ score (overall, motivational, and behavioral) in the dyads were significantly (positively) related to advantageous sequences, which, in turn, predicted dyadic level performance (joint profit).
Chen et al. (2012)	Individual cultural sales	Team-level CQ measured by modified CQS.	Individual motivational CQ was significantly (positively) related to cultural sales. Firm-level CQ magnified this positive relationship.
Chua et al. (2012)	Dyadic creative collaboration task	Individual CQ in dyad.	The members with the highest score on metacognitive CQ in the dyads were significantly (positively) related to dyadic level performance (creative collaboration)
Crotty & Brett (2012)	Teamwork in MNCs	Team-level CQ as average	Team members' individual metacognitive CQ scores were significantly (positively) related to creativity. Team-level CQ magnified the positive relationship between individual metacognitive CQ and creativity.
Adair et al. (2013)	Team activities inside and outside class	Team-level CQ as average	Metacognitive and behavioral CQ on the team level were significantly (positively) related to shared values in culturally heterogeneous teams, while metacognitive and motivational CQ were significantly (negatively) related to shared values in culturally homogeneous teams.
Chen & Lin (2013)	Knowledge sharing	Team-level CQ measured with the modified CQS	Three of four CQ aspects (except behavioral) were positively related to knowledge sharing; perceived team efficacy partially mediated the relationship between metacognitive CQ and knowledge sharing and fully mediated the relationship between behavioral CQ and knowledge sharing.
Moon (2013)	Team presentation	Team-level CQ in average	Higher team-level overall CQ diminished the negative relationship between cultural diversity and initial team performance and improved team performance 15 weeks later at a faster pace.
Salmon et al. (2013)	Dyadic dispute with computer mediator	Dyadic-level CQ as average	Dyads with higher motivational CQ had better performance (Pareto efficiency) in manipulative mediation conditions than in formulative mediation, while dyads with lower motivational CQ had better performance in formulative mediation.
Yitmen (2013)	NA	Organizational CQ Scale	A nine-item scale was developed to measure three facets of organizational CQ: cross cultural coordination/integration (Process), cross-cultural competitive (Position), and cross-cultural experience (Path). Organizational CQ was positively related to international strategic alliance.
Magnusson et al. (2014)	Expectation of challenges	Team-level CQ as average	Greater motivational CQ magnified the positive effect of expectation of challenges on team effort.

Froese et al. (2016)	Expatriation	Organizational-level CQ measured with the modified CQS	Perceived organizational motivational CQ was negatively related to individual turnover intention. Individual motivational CQ diminished the negative direct relationship between organizational motivational CQ and turnover intention.
Li et al. (2017)	Collaboration task of proposal writing	Individual CQ in dyad	Lower CQ in the dyad influenced the frequency of collaborative behaviors; higher CQ influenced the quality evaluation of collaboration.

Note. CQ = Cultural intelligence; MNC = Multinational corporation.

Table 7

Qualitative research on cultural intelligence.

Author and year	Sample	Data collection method	Results
Shapiro et al. (2008)	North American buyers hiring Asian firms	Interview	Buyers were found to increase their cultural sensitivity through four stages: romantic sojourner, foreign worker, skilled worker, and partner. Motivational dimension of CQ was less supported; buyers at all stages were motivated to earn profit and showed no difference in motivational CQ.
Gregory, Prifling, & Beck et al. (2009)	IT offshore project members (German bank and Indian provider)	Case study	Subjective and objective understanding (cognitive CQ) and motivation (motivational CQ) led to cultural adaptive behaviors (behavioral CQ), which, in turn, enabled negotiated culture, characterized by trust-based interpersonal relationships, shared understanding, and the effective resolution of conflicts.
Deng & Gibson (2009)	Managers (expatriate and local) in China	Interview	CQ played a significant role in achieving cross-cultural leadership effectiveness. Four key CQ abilities were identified: cultural awareness, motivational cultural adaptation, adaptive behavior, and effective cross-cultural communication.
Gertsen & Søderberg (2010)	Expatriates in Danish MNCs	Narrative Interview	CQ dimensions (cognitive, emotional, and communicative) were recognized in narrations. Goal-oriented narrations were able to stimulate CQ, especially the metacognitive dimension.
Lee (2010)	Experts, leaders, expatriates	Interview	Multiple intelligences (IQ, CQ, and EQ) were necessary for expatriate success. CQ played a prominent role, and EQ and CQ were crucial in the initial stages, while IQ was dominant when required interaction level was low.
Capatina et al. (2011)	A Romanian IT company	Case study	Firm-level CQ required more than managers with high CQ; also needed competitive resources embodied in firm routines. CQ web platform enabled cultural profile comparisons between Romanian IT companies and different target countries for offshore projects and displayed these competitive resources.
Oliver et al. (2011)	INCLUD-ED project (Center of Research in Theories and Practices that Overcome Inequalities, 2006–2011)	Case study	Egalitarian dialogues between subjects and researchers were necessary conditions for incorporating the CQ of both parties and scientific knowledge development in projects engaged in to overcome educational exclusion for cultural minorities.
Pless et al. (2011)	Participants in Project Ulysses (an integrated service-learning program)	Content analysis	Four aspects of CQ (general knowledge about other cultures, culture-specific knowledge, cultural empathy and sensitivity, being nonjudgmental) were identified as individual learning outcomes of projects.

Mosakowski et al. (2013)	Non-U.S. students participating in a service-learning project for U.S. military veterans	Interview	Metacognitive/cognitive and motivational CQ were enhanced after participating in the project; increases in behavioral CQ were more limited. Conditions which facilitated CQ development were identified as: moderate cultural distance, tight culture, low context, and high moral desirability.
de Ramírez (2015)	Students participating in community service learning workshops in the U.S.	Content analysis	Student-led workshops allowed students to develop CQ skills, especially metacognitive and behavioral CQ, by collaborating with local organizations. Through the workshops, students became more aware of how culture influences organizations and how to bridge cultural differences.
Kaufman & Hwang (2015)	Two French banking institutions operating in the U.S.	Case study	Comparison between two banks indicated that both showed emphasis on cross-cultural knowledge but different levels of mindfulness, including empathy, openness to different perspectives, and using all senses, which led to different levels of behavioral ability.
Kainzbauer & Hunt (2016)	Foreign teachers in graduate schools in Thailand	Interview	The facets of CQ, adopting Thomas's (2006) three facets model (knowledge, behavioral ability, mindfulness), were recognized as critical for foreign teachers in interconnection with their students. CQ improvement was recognized as an ongoing learning process. Specific features in classrooms in Thailand were recognized.
Schreuders-van de Bergh & Du Plessis (2016)	Self-initiated expatriate (SIE) women	Interactive qualitative analysis	Negative reinforcement and categorization may lead to low motivational CQ. Development of motivational CQ may slow down in the first phrase of adjustment as there are too many choices and new explorations, which take energy away from reinvention.
Yalçınkaya & Özer (2017)	International Security and Assistance Force in Afghanistan	Interview	CQ is an important factor of soft and smart power in field operations and could help to improve the ability to conquer people's hearts and minds. Leaders should not neglect CQ as a soft power tool in peace operations.

Note. CQ = Cultural intelligence; EQ = Emotional intelligence; MNC = Multinational corporation.